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DEPARTMENT OF AGRICULTURE
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PRUNING FRUIT-TREES.

Pruning Apple-trees.

THE systematic study that is now being given to pruning is gradually adding to the information on the subject, but this work is of necessity slow. Though trees have been pruned for hundreds of years and volumes written about the subject, there is very little information based on the results of long periods of scientific investigation. To get accurate information on the various systems of training standard trees, experiments, with the same methods employed over the whole period, would need to be conducted throughout the life of the tree, or at least until twenty-five to thirty years old. Information of this kind is not at present available. The recommendations in this circular are therefore based on the information at hand, with the knowledge that some day experimental evidence may give us better understanding of some of the methods now followed and may prove some of the recommendations wrong.

Though orchardists differ greatly in their opinions on pruning, most of them agree that the ideal tree should be convenient, strong, healthy, and productive. While pruning will not alone bring about all of these features, good pruning will help considerably, while bad pruning accounts for many disappointments.

Pruning the Young Tree.—The pruner must have in mind the type of tree he wishes to develop. By systematic training trees can be directed in their growth much as the pruner desires, and in going through the orchards of the country we find nearly as many types of trees as there are pruners. However, the most common type is what is sometimes termed the "modified leader type or semi-pyramid." In this type of tree the leader is used to build a permanent framework on, but is checked from year to year by cutting back in order that the main side branches may develop strong enough to carry heavy loads of fruit. Where side branches are checked and the leader allowed to go unchecked or checked in a lesser degree, the result is a heavy, vigorous

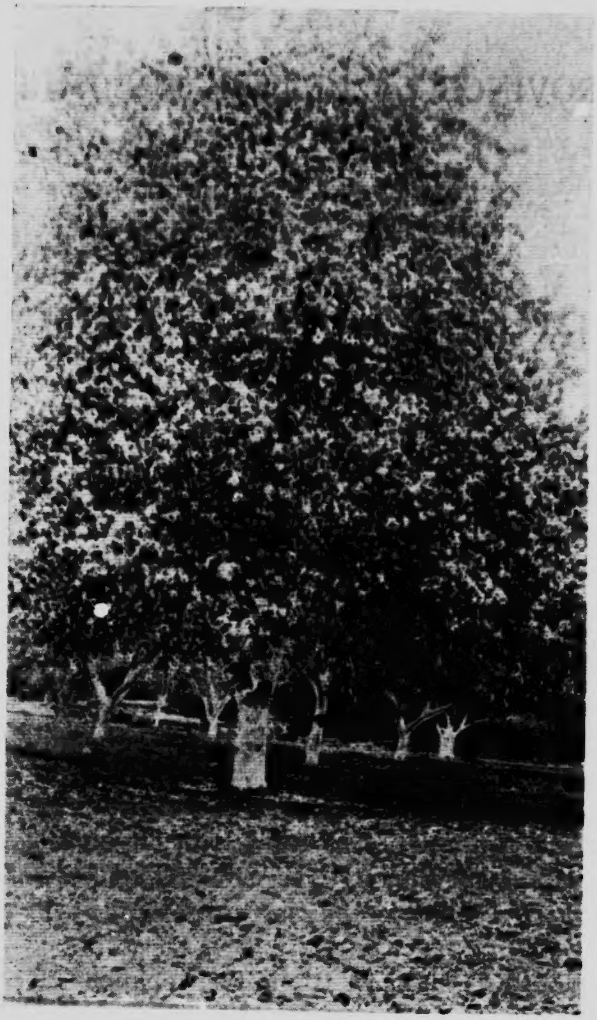

Fig. 1. Blossom on crab-apple in Similkameen.

leader with weak spindly side branches. When the tree has attained a height of 8 or 9 feet and a good strong framework has been developed the leader is usually discontinued. This gives us a stronger tree than the vase shape, and a lower, more spreading tree than the pyramid.

The first phase of pruning is shaping and building a tree that will be capable of carrying heavy loads of fruit and be most convenient for all orchard operations. The tree must be low, yet grown so as not to be in the way of implements, and to interfere with cultural operations as little as possible. To ensure getting trees started well, one-year-old stock should be planted. Well-grown one-year-old trees with well-developed buds are the most desirable type of tree to plant. After planted these should be headed from 2 feet to 30 inches from the ground. It often happens that one-year-old trees come from the nursery with branches on them. Any branches that may be desirable in forming the head may be saved, but all undesirable ones should be cut off.

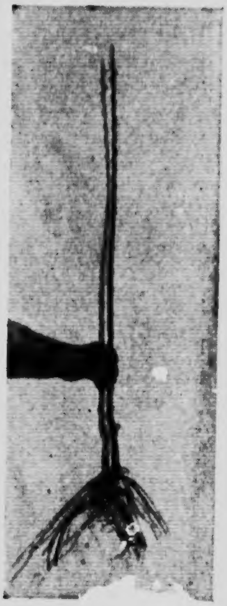

Fig. 2. One-yea [illegible] nursery bef [illegible]

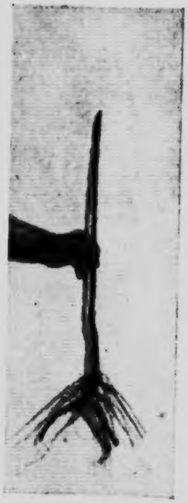

Fig. 3. Same as Fig. 2 after pruning. (NOTE. — Top-pruning should not be done until after tree is set.)

Second-year Pruning.—During the first summer, providing the tree has made good growth, many side branches will have been produced. From these branches we must begin to select our permanent main branches. If the tree has made sufficient growth, from three to five well-placed branches should be saved and the remainder cut out. In selecting these, cut out all bad crotches first and select from those that come away from the main stem at a good wide angle.

These first scaffold or primary branches should be well distributed up and down and around the stem. No two branches should start from the same height. If not possible to get all of the required branches the first season, do not hesitate to cut out all which are not good and select the remainder the following year. It is important that the scaffold branches be free from crotches and well balanced on the stem. After making the selection, cut back everything to about 1 foot from the stem.

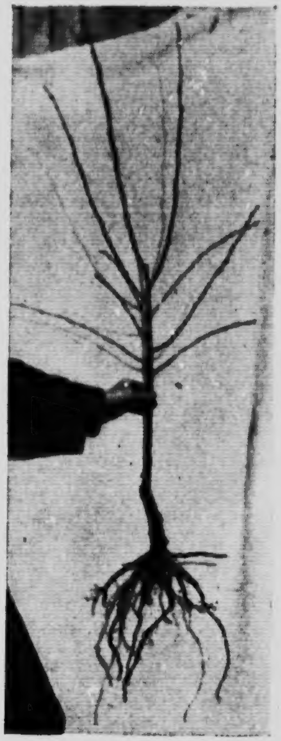

Fig. 4. Two-year-old apple-tree as received from the nursery.

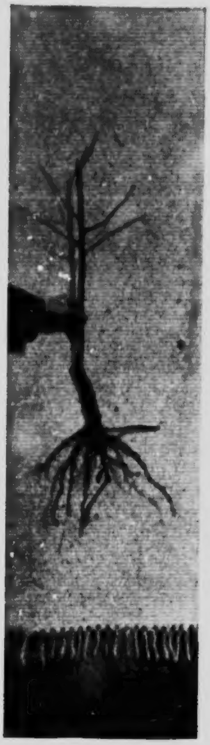

Fig. 5. Same tree as in Fig. 4 after having been pruned. (NOTE.—A branched yearling very similar in type might be received from the nursery and could be pruned in much the same way.)

Third Pruning.—Select any further scaffold branches needed and cut out all surplus branches. During the summer the scaffold limbs will have produced secondary branches; a few of these may be saved, from one to two on each limb, according to the way they affect the balance of the tree. Always cut back the secondary branches more than the main scaffold limbs. This will allow the main branches to become stronger and prevent dangerous crotches. At this pruning head in about 50 per cent. If the tree is becoming unbalanced, the stronger branches may be headed in more severely than the weaker ones. This will have a tendency to check the strong ones and encourage heavier growth in the weaker ones.

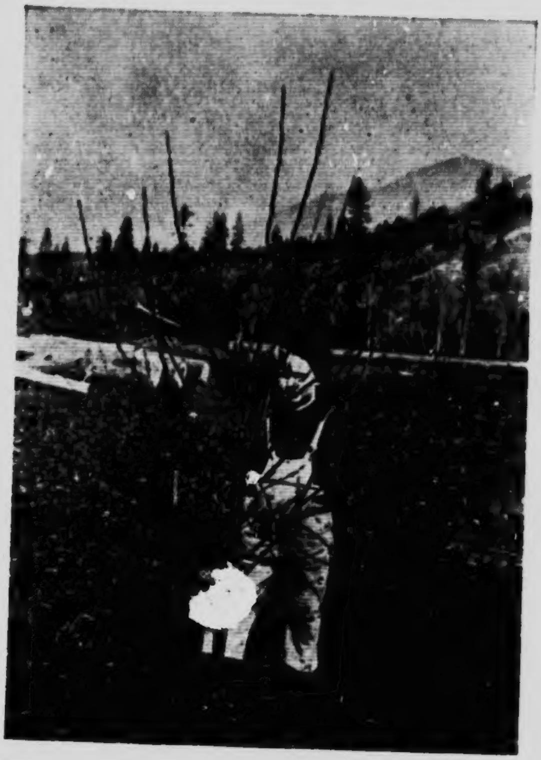

Fig. 6. Apple-tree showing excellent growth after one year planted.

Fourth Pruning.—Thin out all crossing, interfering, and crowding branches and cut off from one-third to one-half of the terminal growth. Treat each scaffold branch similar to the main part of the tree, considering space. After the fourth pruning well-grown trees should be fairly well formed and the succeeding pruning should be lighter. The pruning of the fourth and fifth years should consist of removing superfluous branches and heading back only in cases where the growth is rampant and getting out of bounds. This means the amount of cutting-back is lessened until the end of the fifth year, when only thinning-out should be necessary.

Effect of Pruning on Growth.—Contrary to general opinion, experimental evidence shows that heavy pruning has a tendency to dwarf trees, and the greatest total growth usually follows no pruning at all; however, in young trees, heavy pruning concentrates the growth in fewer limbs, and encourages a stockier, more vigorous growth where we desire to having it in building a tree. After the permanent framework is formed it is time to discontinue [illegible] form of pruning and prune for fruit production.

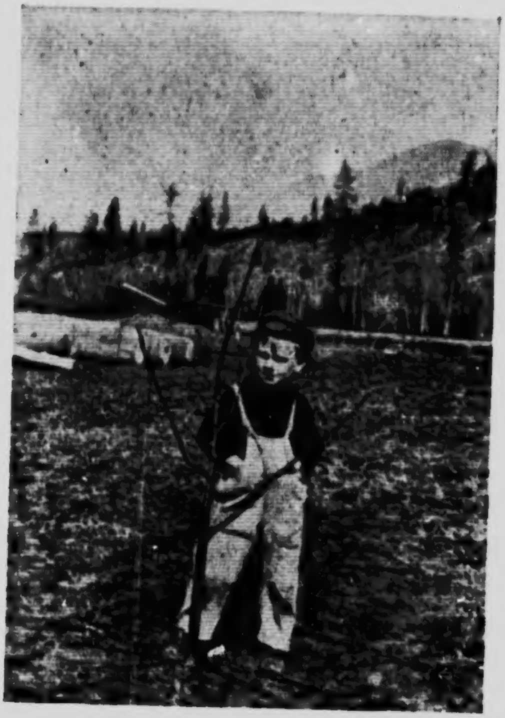

Fig. 7. Same tree as in Fig. 6 after pruning. (Note excellent spacing of branches and angles at which they join the stem.)

Pruning for Fruit.—Everything is done during the first few years of the life of a tree to get well-formed branches and good stocky growth to take care of future crops. This system if continued will retard fruit production, so pruning is gradually lessened until at the end of about the fifth year no heading-back is done. From this time on the trees must be studied closely and each variety becomes a problem in itself. After the end of the fifth year little pruning should be done until the tree is settled down and bearing. The pruning should, under normal conditions, consist of cutting out crossing and diseased branches and keeping the tree thin enough to allow plenty of light to penetrate through the tree.

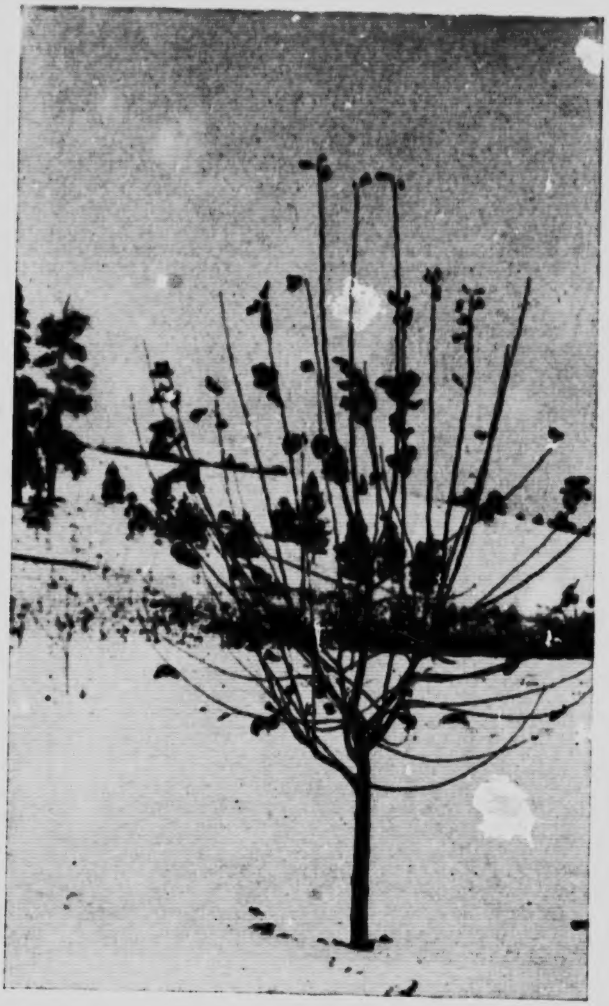

Fig. 8. Apple-tree after three summers' growth before pruning.

Pruning Bearing Trees.—Light annual prunings consisting of thinning-out and heading-back are the best for bearing trees. The amount of heading-back and thinning must be based on the requirements of each individual tree and determined by the pruner. Care and judgment must be used, for if too much heading-back is done annually the tree will become so dense that strong fruit-buds will not form through lack of light, and the tendency will be to upset the balance of the tree

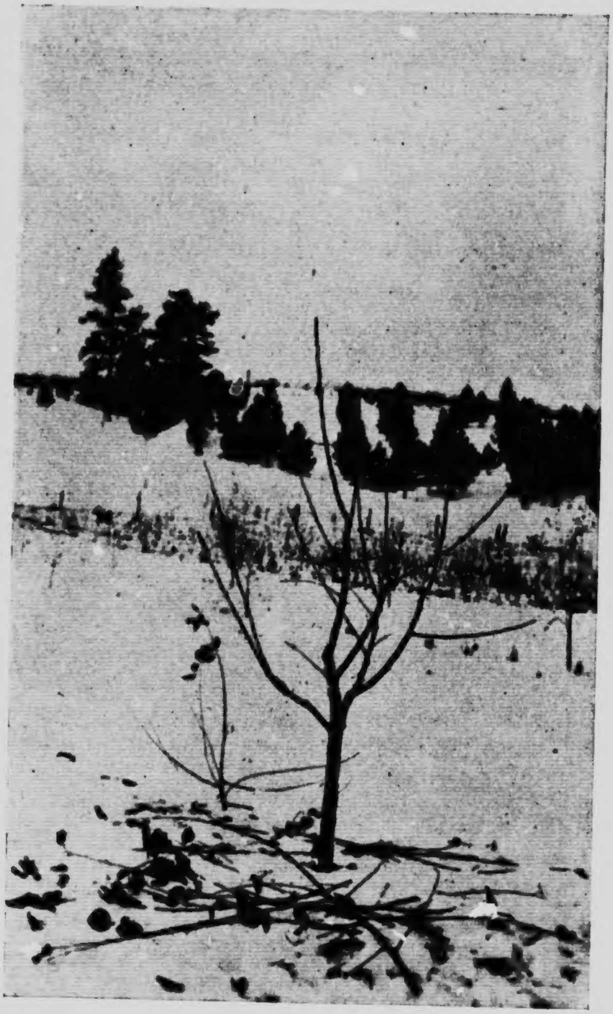

Fig. 9. Same tree as in Fig. 8 pruned. (NOTE.—From now on pruning should not be so heavy and only light heading should be practised.)

and force it into wood-growth. On the other hand, if thinning is followed to an excess, the result will be wasted space and long spindly branches that will not support a crop.

In order to keep the bearing area well distributed we must head back enough to keep our branches fairly strong, and to encourage new growth where it is needed, and thin out enough to allow sufficient light to penetrate to all parts of the tree. We must have light for the production of good fruit. To do this and get the desired results requires considerable judgment on the part of the pruner. When heading back trees over five years old, whenever possible cut to a lateral branch.

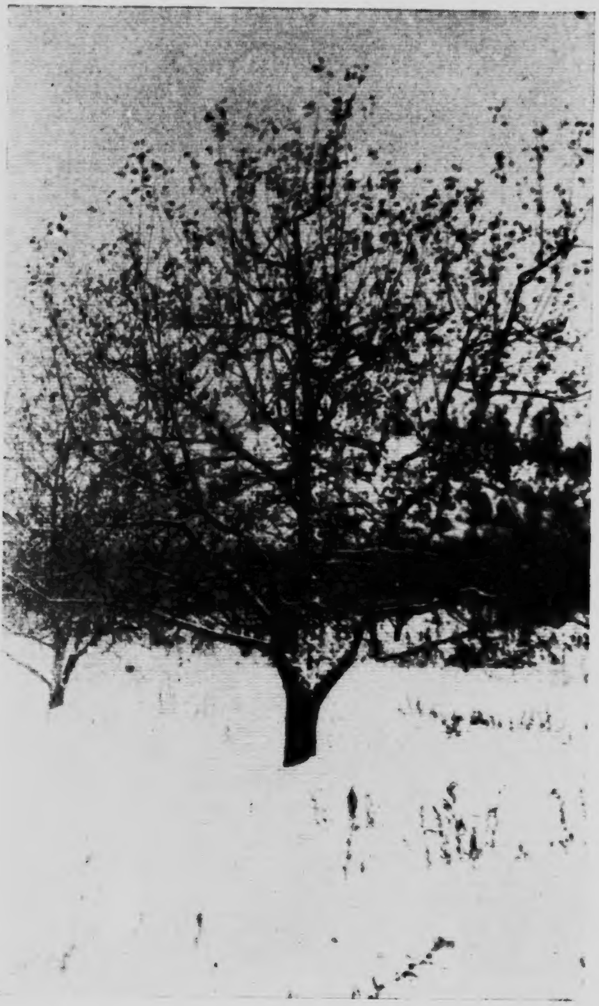

Fig. 10. Jonathan, twelve years old, before pruning. (Note heavy twig-growth due to severe pruning.)

Pruning Neglected Trees.—We are often asked by growers to advise how to correct mistakes that have been made in pruning young trees and how to treat neglected trees. In the case of young trees, where too many branches have been allowed to grow and the tree has grown up to a number of poles with a few branches and most of the spurs on top and around the outside where the light penetrated, they must be treated sensibly and carefully. It is folly to try and make these trees over into what we consider the best type. The best thing, usually, providing cultural conditions are all right, is to gradually open up the trees by removing the worst branches, a few each year, without making any

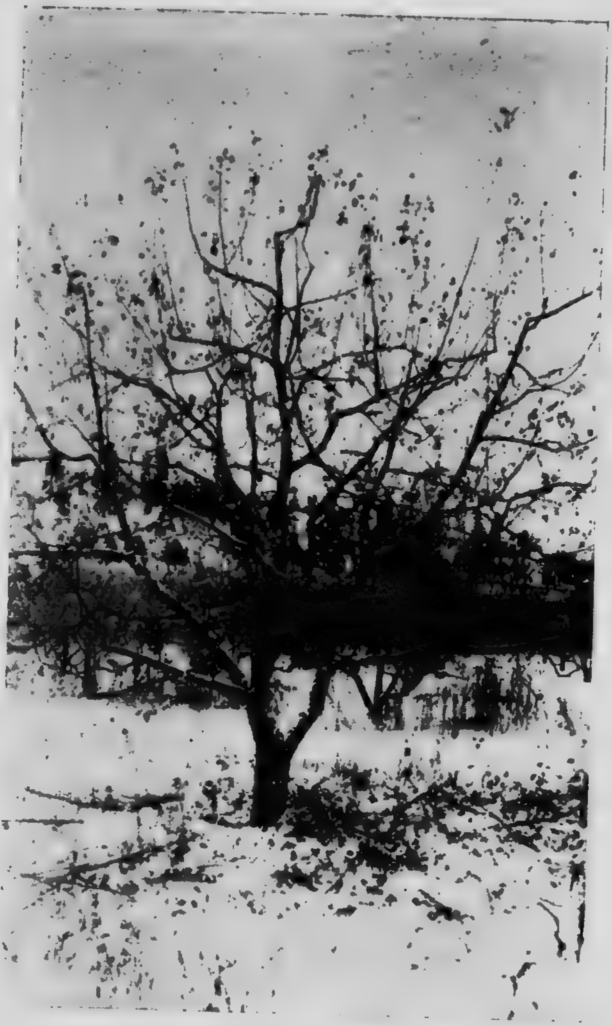

Fig. 11. Same tree as in Fig. 10 after pruning. (NOTE.—No tipping has been done, only thinning of unnecessary growth and heading to laterals where needed.

bigger holes in the tree than necessary and not taking out enough wood to upset the balance of the tree. Heading-back should only be on those branches that are out of bounds or in portions of the tree where it is desired to produce new wood. If the tree is materially weakened from neglect, heavier thinning and a general heading-in will usually benefit it. Many orchardists, in attempts to correct early mistakes in pruning, have tried to do it all in one year, and have thrown the tree so much out of balance and into such heavy wood-growth that several crops

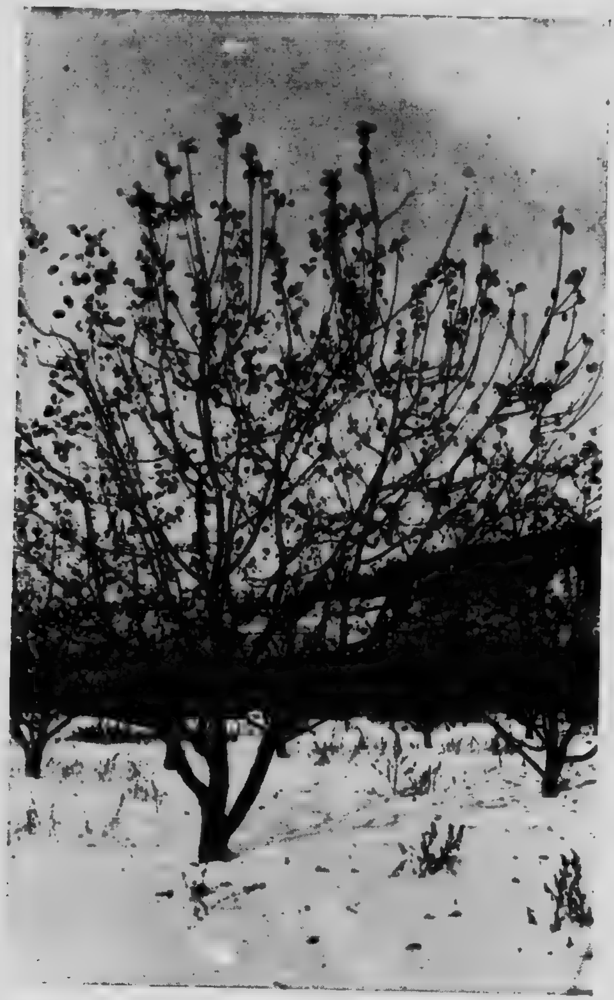

Fig. 12. McIntosh Red, ten years old, before pruning. An ideal type of tree, main limbs well spaced, height and width uniform, and total area well covered with fruiting-wood.

have been lost before bearing again commenced, and the vitality of the tree has been impaired.

Neglected old orchards, where the spurs are crowded and weak and the wood-growth is practically *nil*, are benefited by both heavy heading-back and thinning.

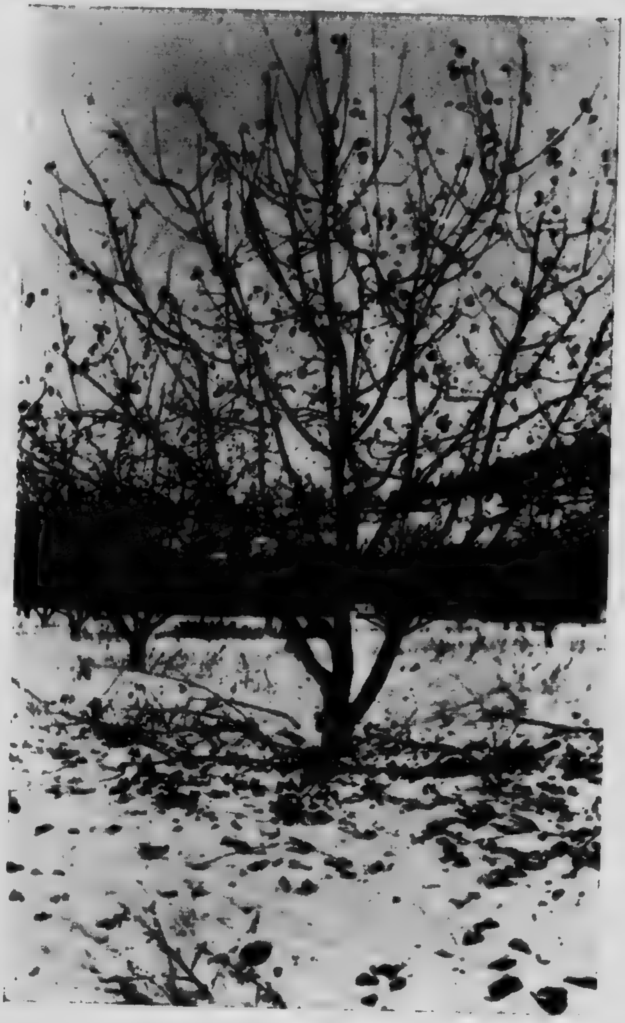

Fig. 13. Same tree as in Fig. 12 pruned. Only thinning-out and heading to lateral growths given this tree.

Old orchards that are in good soil making heavy wood-growth, where pruning has been neglected and they are a dense mass of branches and twigs, are usually benefited by a gradual thinning-out without heading back.

Fillers.—The idea of a filler is a tree that will bear several crops of fruit before the standard trees are large enough to require all of the space. In many instances they fail to do this and are left in too long. Fillers are by many treated like standards, but in the opinion of the writers as much care need not be taken in building a framework free from crotches with well-spaced branches, etc., with fillers, but they should be allowed to grow and bear with only enough pruning to let in light and keep them within bounds. By pruning them lightly or hardly at all they will bear early and as long as they should be allowed to remain.

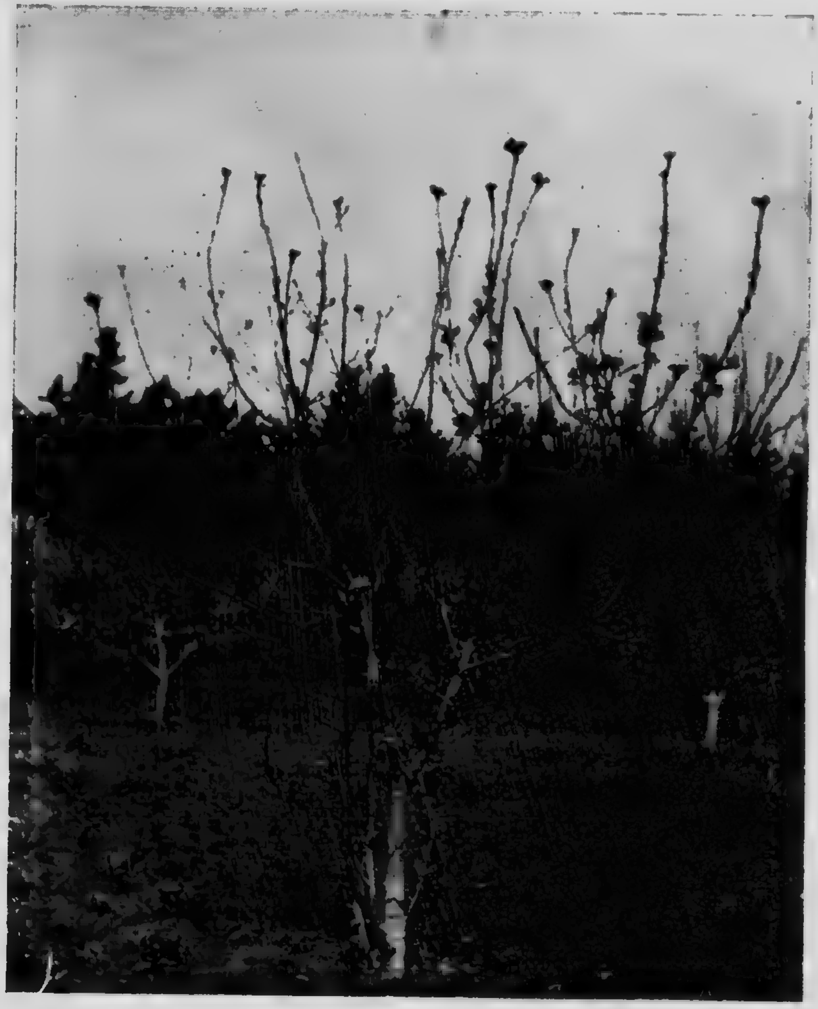

Fig. 14. Neglected tree before pruning.

Pruning Pear-trees.

Pruning of the pear-tree differs but little in principle from that which is used in pruning of the apple, as with the apple the methods used must be varied and those employed which are found best adapted to the variety being grown. Spacing and heading of the main framework should be completed in the first four years. Try and avoid heavy cutting of the young pear-tree from this age; a heavy growth of sappy wood makes the tree more susceptible to the ravages of fire-blight. One other point only may be mentioned on this subject. It may be

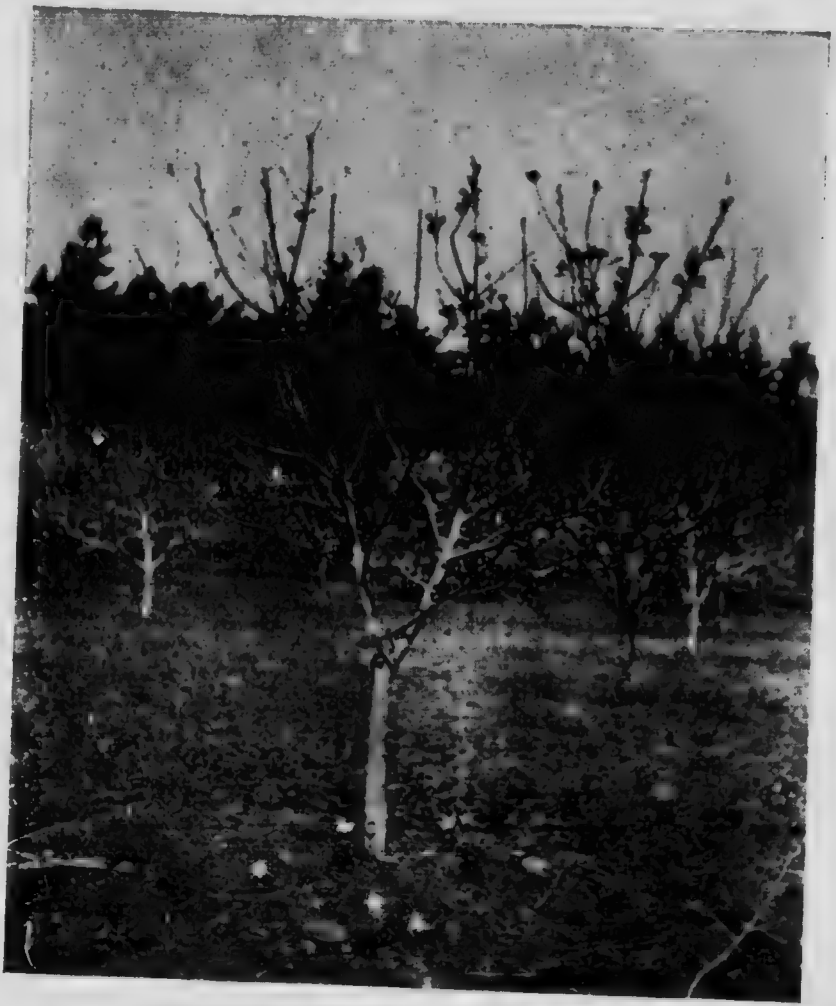

Fig. 15. Same tree as in Fig. 14 after pruning.

often noticed that pear-trees from the age of fifteen to forty years old each spring throw a dense mass of blossoms, but fail to mature a good crop of fruit. In most cases these trees are a mass of fruiting-wood from tip to base, but apparently lack vitality to support it. Much benefit would be derived in such cases by a heavy thinning and shortening of the fruiting-wood, thereby giving the remainder a chance of proper development and strength.

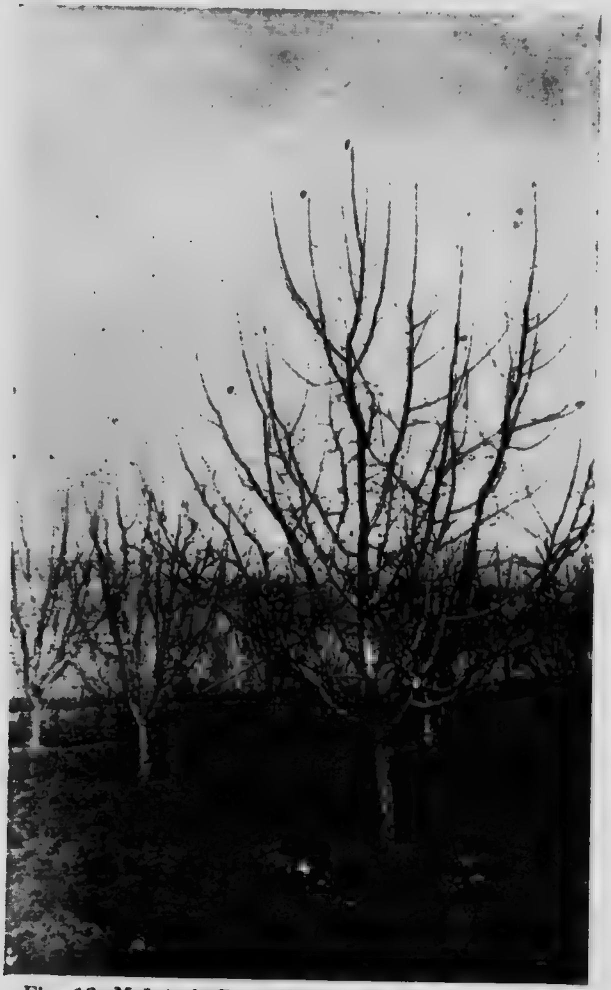

Fig. 16. McIntosh Red at Vernon in good condition.

Pruning Stone-fruits.

The Peach.—This tree differs from that of the apple or pear, and the open headed tree is no doubt best adapted for the peach. This will give, with proper handling, a low-spreading tree with a large bearing area, easily accessible for all orchard operations.

Pruning the Young Tree.—In the first or second year of planting, from four to six well-spaced side limbs should be selected and the central leader taken out. Those remaining should be shortened back to about 3 or 4 inches. From this time on, moderate thinning and heading should be given yearly, as it must be borne in mind the peach-tree bears its fruit on one-year wood, and this method of pruning tends to keep the tree low headed and well furnished with new fruiting-wood. Where trees have become too high and unprofitable, but are still in a

Fig. 17. Result of not cutting out sharp crotches when tree was young.

healthy condition, they may be helped to a new lease of fruitfulness by severe heading-in to three- or four-year-old wood. This will encourage a heavy growth of new wood, from which the grower can select the new top; the new growth thus obtained must be given careful attention as regards thinning and heading if a strong framework is to be maintained.

The Apricot.—In general the principles of pruning outlined for the peach can be applied to the apricot-tree, but two main points should be borne in mind: Do not allow the tree to become overburdened with dead fruit-spurs and keep the heads low, renewing with new wood constantly.

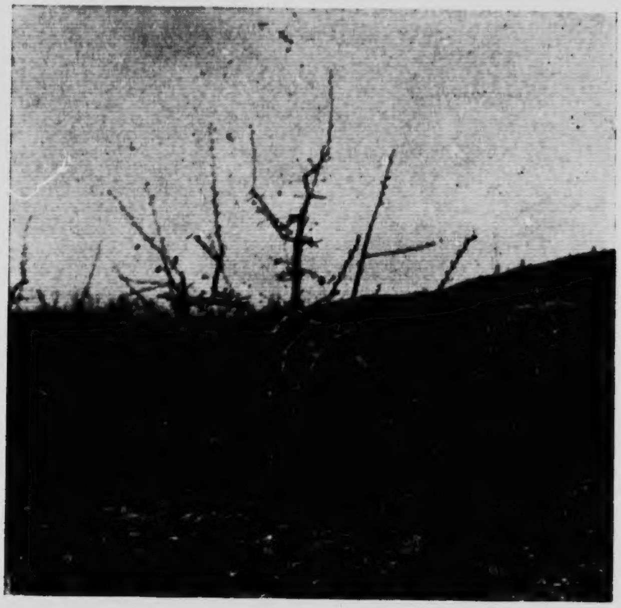

Fig. 18. This tree has been shaved; all small twig-growth and fruiting-wood gone; many very large branches cut off and taken out. At least three good crops of fruit ruined by this severe treatment.

The Prune and Plum.—The habits of the plum and prune are so similar that the few remarks made here can be made to apply to both. Here the modified leader type of tree should be chosen, and the main framework of five to eight well-spaced branches should be established in the first to third year of pruning and the central leader then removed. Moderate thinning and heading should be given for the first five years, but as soon as fruiting starts, too heavy cutting should be avoided; and this so long as the trees continue to make a normal growth each year.

Encourage renewal of the spur-wood by shortening back a percentage of this wood each year, cutting out all dead material, and thinning out healthy spurs when too thick.

Cherries.—Both sweet and sour cherries should be grown on the modified leader type of tree, with six to eight well-spaced limbs distributed over the first 6 feet in height of the central leader. This should be accomplished by the third year from planting in the orchard. The sweet cherry can be given fairly severe pruning for the first three years, but from then on little tipping should be done, excepting on very

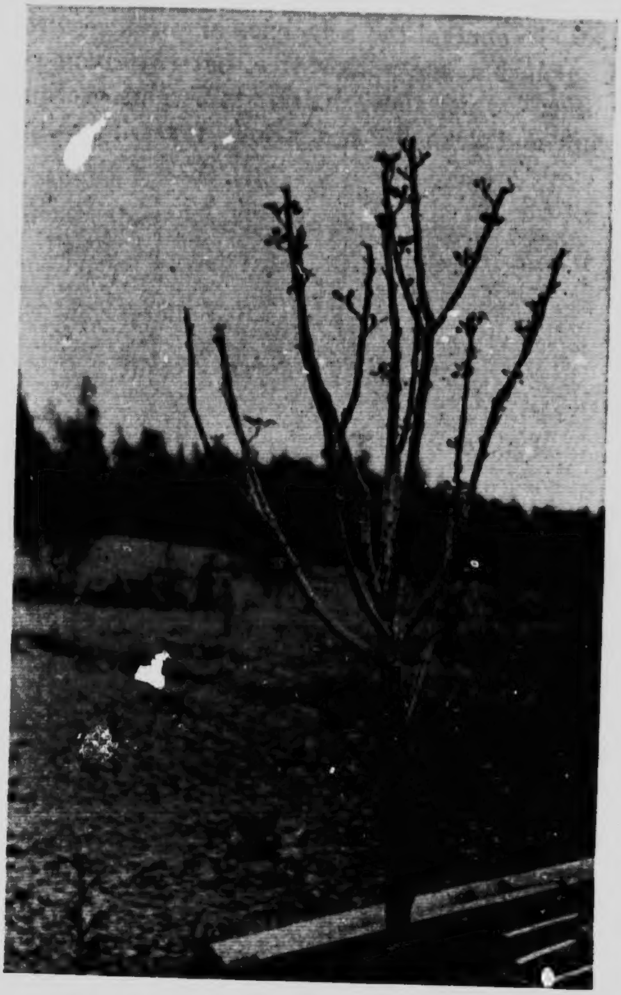

Fig. 19. Cannot be recommended; too many branches and bad crotches. Many should have been cut out first year.

strong growths; for preference and when possible, head back to good lateral growth and do not tip. The sour cherry can be given more severe pruning for a longer period than the sweet variety, on account of its more slender habit of growth. The fruiting area of the tree also becomes quickly denuded of fruiting spur-wood if allowed to go without sufficient tipping to keep new wood and the existing fruit-spurs in a healthy condition; aim to get a low-spreading tree, well opened, and with a maximum of medium-length healthy fruiting-wood.

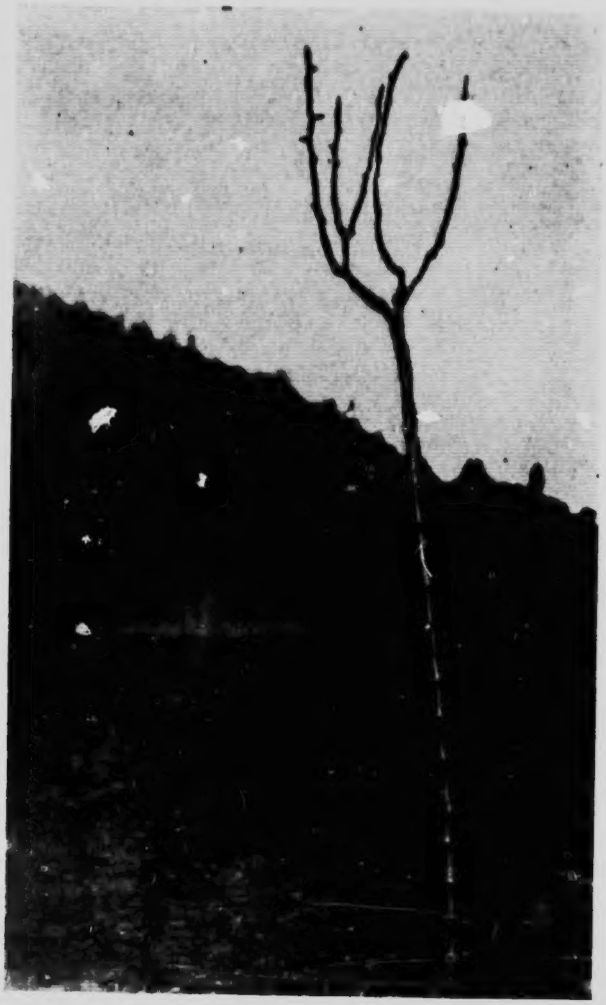

Fig. 20. Getting up in the air; head also has too many bad forks.

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This circular has been prepared by Ben Hoy, District Horticulturist, and H. H. Evans, District Field Inspector, at the request of the Horticultural Branch.

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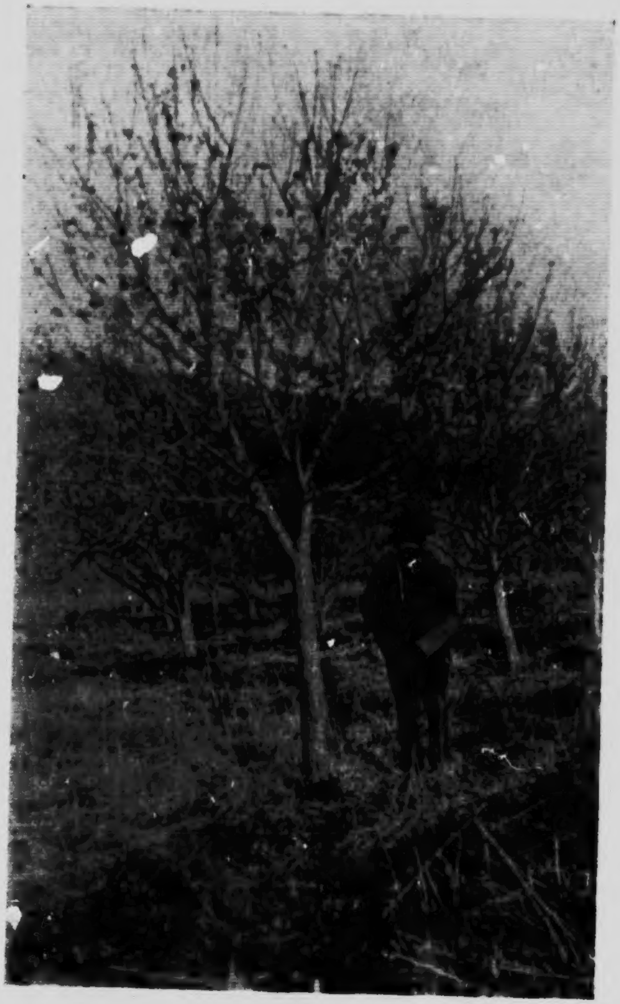

Fig. 21. Too high; also liable to split because of bad fork.

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